

AD-A150 811

STREAMLINED TEST REPORTING AND PLANNING (STRAP):  
COMPUTERIZED HUMAN FACTORS QUESTIONNAIRE(U) ARMY TROPIC  
TEST CENTER APO MIAMI 34004 L 5 MAY SEP 84

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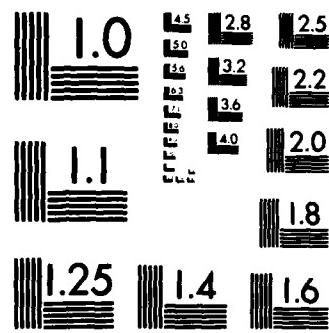
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AD-A150 811

AD No.  
TECOM Project No. 7-CO-RD4-TTO-00T  
USATTC Report No. 840905

METHODOLOGY INVESTIGATION

UNIT 3 REPORT

STREAMLINED TEST REPORTING AND PLANNING (STRAP):

COMPUTERIZED HUMAN FACTORS QUESTIONNAIRE

by

LLOYD S. HAY



Materiel Test Division

UNITED STATES ARMY TROPIC TEST CENTER

APO MIAMI 34004

SEPTEMBER 1984

Period Covered:

June through September 1984

Prepared for:

US Army Test and Evaluation  
Command, Aberdeen Proving Ground,  
MD 21005

Approved for public release;  
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DEPARTMENT OF THE ARMY Mr. Egbert/aw/AV283-2170  
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND  
ABERDEEN PROVING GROUND, MARYLAND 21005-5055

REPLY TO  
ATTENTION OF  
AMSTE-AD-M

2 NOV 1984

SUBJECT: Streamlined Test Reporting and Planning: Computerized Human Factors Questionnaire Methodology Investigation Unit 3 Report

Commander  
US Army Tropic Test Center  
ATTN: STETC-MTD-A  
APO Miami 34004

Subject report is approved.

FOR THE COMMANDER:

A handwritten signature in black ink, appearing to read "Grover H. Shelton".

GROVER H. SHELTON  
C, Meth Imprv Div  
Analysis Directorate

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

| REPORT DOCUMENTATION PAGE  |  | READ INSTRUCTIONS BEFORE COMPLETING FORM |
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| 1. REPORT NUMBER<br>TECOM Project No. 7-CO-RD4-TTO-001   | 2. GOVT ACCESSION NO.<br><i>AD-A15C 811</i>  | 3. RECIPIENT'S CATALOG NUMBER            |
| 4. TITLE (and Subtitle)<br>Streamlined Test Reporting and Planning (STRAP): Computerized Human Factors Questionnaire   | 5. TYPE OF REPORT & PERIOD COVERED<br>Methodology Investigation<br>Unit 3 Report-June through September 1984 |  |
| 7. AUTHOR(s)<br>Lloyd S. Hay   | 6. PERFORMING ORG. REPORT NUMBER<br>USATTC Report No. 840905   |  |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br>US Army Tropic Test Center<br>ATTN: STETC-MTD-A<br>APO Miami 34004  | 10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBER   |  |
| 11. CONTROLLING OFFICE NAME AND ADDRESS  | 12. REPORT DATE<br>September 1984  |  |
| 14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)<br>US Army Test and Evaluation Command<br>ATTN: AMSTE-AD-M<br>Aberdeen Proving Ground, MD 21005  | 13. NUMBER OF PAGES<br>25  |  |
| 15. SECURITY CLASS. (of this report)<br>Unclassified   |  |  |
| 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE   |  |  |
| 16. DISTRIBUTION STATEMENT (of this Report)<br>Approved for public release; distribution unlimited.  |  |  |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)<br><i>(cont'd on p. 1)</i>  |  |  |
| 18. SUPPLEMENTARY NOTES<br><i>Keywords include:</i>  |  |  |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)<br>Questionnaires<br>Human Factors Engineering,<br>Ranking<br>Software,<br>Computer Programs, Software<br>Ratings   |  |  |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>A computerized program for preparing questionnaires is presented. The computer operator enters the form title and lists of questions which are stored under a unique file name. He later assembles the questionnaire by entering the question variable number and using the appropriate special function key. The final product is letter quality ready for insertion into the test plan. |  |  |

(to J-2)



DEPARTMENT OF THE ARMY  
UNITED STATES ARMY TROPIC TEST CENTER  
APO MIAMI 34004

STETC-MTD-A

14 SEP 1984

SUBJECT: Streamlined Test Reporting and Planning (STRAP) Methodology  
Investigation: Unit 3 Report -- Computerized Human Factors  
Questionnaire, TECOM Project No. 7-CO-RD4-TT0-001

SEE DISTRIBUTION

1. BACKGROUND

a. This is the third and final methodology report for the STRAP investigation. The methodology investigation proposal (MIP) is at enclosure 1. Work on the computer aided reporting system; the test status information program; and the reliability, availability and maintainability data collection system called for in the MIP will be deferred so that those efforts will fit better into the overall US Army Test and Evaluation Command (TECOM) effort for automating test plans and reports. TECOM test plan/report automation actions are now being worked out by a TECOM-wide functional coordinating group. The Environmental Issues Guide for the Humid Tropic Testing portion of STRAP has been transformed into a separate MIP and will be reported separately, if approved and funded.

b. The following paragraphs provide background information for this particular report in the STRAP series:

(1) Questionnaires are used during testing as diagnostic tools to ascertain equipment or system problems and to determine user acceptance. Questionnaires are employed to obtain test data for 90 percent of the tests conducted at the US Army Tropic Test Center (USATTC).

(2) Human factors questionnaires are drafted during test plan preparation. Previously, questionnaires were developed by a tedious process involving writing, typing, and manually applying linear graphics. After the initial product was prepared, it was distributed within the Materiel Test Division for review, correction, and additional input. The review process frequently resulted in a format change which required a repeat of the tedious process of questionnaire preparation. Normally, when test items arrive for testing, the technical manuals and the equipment are examined to assure that the prepared questionnaires encompass all important facets of the system. If the questionnaires were found to be lacking, a repeat of the tedious process of questionnaire preparation was again required to update the forms.

(3) An automated, more efficient method of questionnaire preparation and revision was required.

2. OBJECTIVE

Develop a computer program to reduce the time and effort required for questionnaire preparation and modification.

14 SEP 1984

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SUBJECT: Streamlined Test Reporting and Planning (STRAP) Methodology  
Investigation: Unit 3 Report -- Computerized Human Factors  
Questionnaire, TECOM Project No. 7-CO-RD4-TT0-001

### 3. SUMMARY OF PROCEDURES

a. In order to reduce the time and effort required to produce questionnaires, the Human Factors Laboratory, USATTC, developed a computerized procedure for drafting questionnaires using a Hewlett-Packard 9845T (HP) desk top computer with program software developed in-house.

b. Now, when a questionnaire is needed, human factors personnel develop it using the computer and the in-house program. The program is interactive, questioning the operator as to the desired input for each distinct section of the questionnaire (e.g. the program will list the different types of rating scales available when that section of the questionnaire is ready to be prepared).

c. The program covers five distinct sections, including the questionnaire title, test participant data, rating scale, question category and question.

d. The program can store a maximum of 255 questions. The questions can be identified by category (e.g. loading procedures, maintenance, etc). For questionnaires requiring more than 255 questions, additional files of questions can be constructed.

e. The present program was written by the author for use with the HP-9845T desk top computer and an HP-9885M flexible disk drive for data and program storage. The minimum memory required is 18 K-bytes. Form titles, question category groups, questions and other text are stored under unique file names. This facilitates the recall of information for editing, expanding, or restructuring the draft questionnaires.

f. The special function key feature of the HP-9845T is used extensively in the program developed. By pressing the appropriate special function key (K<sub>0</sub> through K<sub>15</sub>), the questionnaire can be assembled by manipulating text files previously stored. A template is used to indicate the function of each key. Pressing the "HELP" key provides detailed information on the use of each special function key.

### 4. SUMMARY OF RESULTS

a. A copy of the questionnaire preparation computer program is provided at enclosure 2.

b. A copy of a sample computer-prepared questionnaire is provided at enclosure 3. The rating statements used in Part I of this enclosure are adequate for local use but they do not comply with TECOM Pam 602-1, Vol 1, therefore additional questionnaires that comply with TECOM Pam 602-1, Vol 1 must be administered to satisfy Headquarters TECOM testing requirements.

14 SEP 1984

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SUBJECT: Streamlined Test Reporting and Planning (STRAP) Methodology  
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5. ANALYSIS

Computer assisted questionnaire preparation saves time and effort during initial preparation, during text plan review, and during final preparation prior to testing. The result is a printed form of camera-ready quality that can be used as copy for the published test plan and that can be duplicated for data gathering.

6. Distribution for the report is at enclosure 4.

4 Encl  
as

*R P Barrere*

RICHARD P. BARRERE  
Colonel, Infantry  
Commanding

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DEPARTMENT OF THE ARMY  
United States Army Tropic Test Center  
APO Miami 34004

February 1983

METHODOLOGY INVESTIGATION PROPOSAL

1. TITLE. Streamlined Test Reporting and Planning (STRAP)
2. CATEGORY. Environmental Susceptibility
3. INSTALLATION. US Army Tropic Test Center  
ATTN: STETC-MTD-A  
APO Miami 34004
4. PRINCIPAL INVESTIGATION. Robert J. Fuchs  
US Army Tropic Test Center  
STETC-MTD-A  
APO Miami 34004  
AUTOVON 313-285-5412
5. STATEMENT OF THE PROBLEM. Although the US Army Tropic Test Center (USATTC) has come a long way in the past few years to generate an efficient and productive system for preparing test plans and reports, there are a number of areas within the testing operation that need to be streamlined to a more systematic process. Improved operating procedures for the collection, flow, analysis and presentation of test data are needed for more efficient control of data throughout active testing and test reporting. Improvements in the process of developing detailed test plans are also needed, particularly in implementing USATTC's Computer Aided Test Planning (CATPLAN) and in producing computerized forms and questionnaires.
6. BACKGROUND. The lack of personnel has not allowed the Center to streamline the data flow process. Now that the Center is staffed properly in the data analysis area, the operations research and mathematical statistician personnel need to develop standard data handling procedures to fill the gaps between procedures established under previous methodology investigations, such as Computer Aided Test Planning (CATPLAN) and Reliable Acquisition Processing, and Integration of Data (RAPID).
7. GOAL. Specifically, the Center will develop techniques to include, but not be limited to the following:
  - a. Develop an implementation program for CATPLAN. This computer program will automatically copy issues and criteria from Appendix A and distribute them to their proper location in the CATPLAN subtests.

Enclosure 1

### Streamlined Test Reporting and Planning (STRAP) (cont)

- b. Develop a computerized method for producing human factors questionnaires in a standard (but pliable) format such that the computer output can be used as the printed questionnaires and can be inserted into the test plan without having to be formatted and typed by word processing personnel.
- c. Develop a procedure for using data flow plans during active tests, to include data hand-off procedures to the Data Analysis Laboratory.
- d. Develop an internal operating procedure for the Data Analysis Laboratory.
- e. Develop computerized techniques for producing figures that will appear in final reports, such that stored data can be translated into charts and graphs that are acceptable for the final report.
- f. Initiate plans to complete the data matrix designed and reported in the final report for Environmental Issues Guide for the Humid Tropics (EIGHT). Completion of the matrix is a necessary step in developing a systematic approach to an environmental test methodology program at USATTC and to developing a foundation for the TECOM environmental testing program.

8. DESCRIPTION. As needs such as the above arise during reviews and analyses of USATTC's operations, they will be defined specifically and undertaken as separate projects under this investigation. Each goal/project will be completed and reported on separately so that reports from the investigation will be produced as separate goals are accomplished.

### 9. JUSTIFICATION.

- a. Problem. The goals stated above are necessary to the efficient operation of this Center. These goals will be accomplished regardless of the funding level of this investigation. The Center will have an approved project to charge direct labor hours and a mechanism for reporting results.
- b. Dollar Savings. When available, the proposed technique will have an impact on every test conducted at USATTC. Estimated savings per test would be approximately 100 man-hours.
- c. Workload. It is anticipated that the average USATTC test completion rate of 21 tests per year will be maintained in the near future, resulting in a total savings per year of 2,100 man-hours.
- d. Recommended TRMS Priority. 1
- e. Association with Requirements Documents. Not applicable.
- f. Other. This investigation is being conducted to improve turn-around-time in producing USATTC's main products, the detailed test plan and the final test report.

Streamlined Test Reporting and Planning (STRAP) (cont)

10. RESOURCES.

a. Financial.

(1) Funding Breakdown:

|                             | Dollars (thousands) |                      |                  |                      |
|-----------------------------|---------------------|----------------------|------------------|----------------------|
|                             | FY83<br>In-House    | FY83<br>Out-of-House | FY84<br>In-House | FY84<br>Out-of-House |
| Personnel Compensation      | --                  | --                   | --               | --                   |
| Travel                      | --                  | --                   | 3                | --                   |
| Contractual Support         | --                  | 0.5                  | --               | 2                    |
| Consultant & Other Services | --                  | --                   | --               | --                   |
| Materials & Supplies        | 0.5                 | --                   | 2                | --                   |
| Equipment                   | --                  | --                   | 2                | --                   |
| Subtotals                   | 0.5                 | 0.5                  | 7                | 2                    |
| FY TOTAL                    |                     | 1.0                  | 9                |                      |

(2) Explanation of Cost Categories:

(a) Personnel Compensation: Not applicable.

(b) Travel: Coordination with other Army environmental test and research activities.

(c) Contractual Support: Software Lease.

(d) Consultants: Not applicable.

(e) Materials and Supplies: Not applicable.

(f) Equipment: Not applicable.

b. Anticipated Delays. None.

c. Obligation Plan.

| Obligation<br>Rate<br>(Thousand) | FY84 | FQ | 1   | 2   | 3   | 4   |
|----------------------------------|------|----|-----|-----|-----|-----|
|                                  |      |    | 2.0 | 2.0 | 3.0 | 2.0 |

Streamlined Test Reporting and Planning (STRAP) (concluded)

d. In-House Personnel.

|                          | FY84 |                       |              |                         |
|--------------------------|------|-----------------------|--------------|-------------------------|
|                          | No.  | Man-Hours<br>Required | Available    | Study Hours<br>Required |
| Phy Sci Admin (GS-1301)  | 1    | 100                   | 100          |                         |
| Ops Rsch Anal (GS-1515)  | 2    | 1000                  | 1000         |                         |
| Elec Engr (GS-0855)      | 1    | 100                   | 100          |                         |
| Math Stat (GS-1529)      | 2    | 1900                  | 1900         |                         |
| Gen Engr (GS-801)        | 1    | 80                    | 80           |                         |
| Rsch Psych (GS-180)      | 1    | 200                   | 200          |                         |
| Program Analyst (GS-345) | 1    | 40                    | 40           |                         |
| Programmer (GS-344)      | 1    | 1200                  | 1200         |                         |
| Tech Editor (GS-1083)    | 1    | 300                   | 300          |                         |
| Tech Info Spec (GS- )    | 1    | 500                   | 500          |                         |
| Biologist (GS-401)       | 1    | 300                   | 300          |                         |
| <b>TOTAL</b>             |      | <b>5,720</b>          | <b>5,720</b> | <b>2,000</b>            |

11. INVESTIGATION SCHEDULE.

|          | FY83 |   |   |   |   |   | FY84 |   |   |   |   |   |
|----------|------|---|---|---|---|---|------|---|---|---|---|---|
|          | O    | N | D | J | F | M | A    | M | J | J | A | S |
| In-House | -    | - | - | - | - | - | -    | - | - | - | - | R |
| Contract |      |   |   | A | - | - | -    | - | - | - | - | - |

LEGEND:

- - - Active investigation work
- A Award of contract
- R Final report due at HQ, TECOM

12. ASSOCIATION WITH TOP PROGRAM. This proposal may result in a new TOP.

FRANK S. MENDEZ  
Chief, Materiel Test Division

(END COPY)

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10 ! COMPUTERIZED PROGRAM FOR CONSTRUCTING QUESTIONNAIRES. PROGRAM
20 ! STORED ON HF DISC #12 , FILE "QUEST5" [PROTECT:"QUEST5","Q"]
25 ! MODIFY RATING SCALES, INSTRUCTIONS & CATEGORIES AS REQUIRED
28 ! PROGRAM STORES UNNUMBERED QUESTIONS AND WILL
30 ! LIST FORM TITLES, CATEGORY TITLES AND QUESTIONS FOR RECORD
40 ! AUTHOR: L.S.H. - JULY 1984, VERSION: QUEST5-A
50 ! ****
51 PRINTER IS 16
52 PRINT PAGE
53 DISP "
54 Z$=."
60 DISP "PRINTER IS ?..[0]=Hard Copy Printout,[16]=CRT Display - SELECT,
    THEN CONT";
65 INPUT P
70 PRINTER IS P
80 LOAD KEY "Quest3"
90 DIM Q$(99,1)[78] ! NINETY-NINE 78-CHARACTER STRINGS RESERVED FOR QUESTION
LIST
91 DIM T$(2)[72] ! TWO 72-CHARACTER STRINGS RESERVED FOR TITLES
93 DIM O$(75) ! RESERVED FOR OPEN-ENDED QUESTIONS
110 DISP " INPUT NEW OR RECALL STORED DATA? (<I>NPUT.,<R>ECALL - SELECT, T
HEN CONT ";
120 INPUT D$
122 PRINT
124 PRINT " FILES AVAILABLE ON THIS DISC "
126 PRINT
128 CAT
129 PRINT LIN(3)
130 INPUT " INPUT FILE-NAME FOR DATA STORAGE ..(6-CHAR.MAX) - THEN PRESS
CONT ",F$
131 IF D$="R" THEN 133
132 GOTO 140
133 PRINT
134 ASSIGN #1 TO F$
135 MAT READ #1;T$,Q$
137 PRINT -----
-----
138 PRINT LIN(5)
139 GOTO 400
140 PRINTER IS 0
150 PRINT
160 PRINT
170 PRINT " LIST OF TITLES, CATEGORIES AND QUESTIONS "
175 PRINT " DATA STORED IN FILE ";F$
180 PRINT
190 PRINT "CATEGORY VAR. TEXT "
200 PRINT
210 INPUT " (1)-LINE OR (2)-LINE TITLE?... SELECT ONE, THEN PRESS CO
NT ",Ln
220 IF Ln=2 THEN GOTO 270
230 INPUT "[----- TEST TITLE (Max Characters=72)-----"
--->]",T$(1)
240 PRINT "FORM TITLE";TAB(14);T$(1);TAB(20);T$(1)
250 PRINTER IS P

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260 GOTO 320
270 INPUT "[<-----FIRST LINE OF TEST TITLE (Max Characters=72)-----  
-->]",T$(1)
280 INPUT "[<-----SECOND LINE OF TEST TITLE (Max Characters=72)-----  
-->]",T$(2)
290 PRINT "FORM TITLE";TAB(14);T$(1);TAB(20);T$(1)
300 PRINT "FORM TITLE";TAB(14);T$(2);TAB(20);T$(2)
310 PRINTER IS P
320 Nu=-1
323 GOTO 330
324 DISP "
325 DISP "
326 INPUT " INPUT LAST TEXT NUMBER...THEN PRESS CONT ",  
Nu
330 Nu=Nu+1
335 TYPEWRITER ON
340 DISP "|<--WRITE TEXT #";TAB(18);Nu;TAB(23);" (Max Chars.=42)-->|----52--|  
----62-->|----72-->|";
350 LINPUT Q$(Nu,1)
360 PRINTER IS 0
370 PRINT "TEXT";TAB(14);Q$;Nu;TAB(20);Q$(Nu,1)
380 PRINTER IS P
385 IF Q$(Nu,1)="END" THEN 395
390 GOTO 330
395 TYPEWRITER OFF
400 INPUT " DO YOU WANT TO STORE DATA?? (Y/N) - SELECT, THEN PRESS CON  
T ",Y$  
401 DISP "
405 PRINT LIN(3)
406 PRINT "-----"  
-----"
407 PRINT LIN(5)
410 IF Y$="N" THEN 498
411 INPUT " IS THIS A (N)ew FILE OR (E)xisting FILE?...(N/E) SELECT, THEN  
CONT ",Y$  
412 IF Y$="N" THEN 419
413 PURGE F$
414 WAIT 200
419 DISP TAB(14);" STORING DATA !! ";
420 CREATE F$,Nu/3+1
425 ON ERROR GOTO 443
430 ASSIGN #1 TO F$
440 MAT PRINT #1;T$,Q$  
441 ASSIGN #1 TO *
443 OFF ERROR
444 DISP "
445 DISP " DATA STORED !!... PRESS CONT TO START PRINTING ";
446 PAUSE
450 L1=LEN(T$(1))/2 ! FORMULA FOR CENTERING TEST TITLE
450 L2=LEN(T$(2))/2 ! FORMULA FOR CENTERING TEST TITLE
470 L1=INT(38)-L1 ! " " " " "
480 L2=INT(38)-L2 ! " " " " "
490 GOTO 530
498 WAIT 200

```

```

500  DISP "          READY !!!!!... PRESS CONT TO START PRINTING   ";
502  PAUSE
503  DISP "
505  L=LEN(T$(1))/2      ! FORMULA FOR CENTERING TEST TITLE
510  L=INT(38)-L        !   "   "   "   "   "
520  GOTO 560
530  PRINT TAB(L1);T$(1)
540  PRINT TAB(L2);T$(2)
550  GOTO 570
560  PRINT TAB(L);T$(1)
570  PRINT
580  PRINT
600  PRINT
610  PRINT "Test exercise: _____ Date: _____"
620  PRINT
630  PRINT "Name: _____ Rank/grade: _____"
640  PRINT
650  PRINT "Unit: _____ Mos/job: _____"
660  PRINT
670  PRINT "Age: _____ Sex: _____ Time in Panama: _____"
680  PRINT
690  PRINT "Previous experience with test item: _____"
700  PRINT " _____"
710  PRINT " _____"
720  PRINT
725  WAIT 200
730  DISP "
731  WAIT 200
732  DISP "          SELECT APPROPRIATE FUNCTION KEY.....   ";
740  PAUSE
750  PRINT "
760  PRINT "
770  PRINT "
780  PRINT "
C |
790  PRINT "First, rate how easy or hard it was to perform|V E| E |T H| H |V H|
A |
800  PRINT "the task. Then, if you checked 'Hard,' 'Very |E A| A |T A| A |E A|
N |
810  PRINT "Hard,' or 'Can't Do,' explain the problem with|R S| S |L R| R |R R|
D | N |
820  PRINT "the item in the space under the question.    |Y Y| Y |E D| D |Y D|
T O| A |
830  PRINT "

```

```

835 GOTO 730
880 DISP "
885 INPUT "      INPUT CATEGORY TITLE VARIABLE NUMBER Q$(N) THEN PRESS CONT
  ",N
890 PRINT TAB(47);"
900 PRINT Q$(N,1);TAB(47);"
930 DISP "
1000 DISP "
1005 INPUT "      INPUT SINGLE-LINE QUESTION & VARIABLE NUMBERS..U$,Q$(N) THEN CO
NT
  ",U$,N
1008 U$=U$&Z$
1010 PRINT TAB(47);"
1020 PRINT U$;TAB(5);Q$(N,1);TAB(47);"
1030 PRINT "
  |
  |
1040 PRINT "
  |
  |
1050 PRINT "
  |
  |
1060 PRINT "
  "
1070 GOTO 1000
1080 DISP "
1085 INPUT "      INPUT FIRST LINE QUESTION AND VARIABLE NUMBERS..U$,Q$(N) THEN
CONT
  ",U$,N
1090 DISP "
1095 INPUT "      INPUT SECOND LINE QUESTION VARIABLE NUMBER...Q$(Nu) THEN PRESS
CONT
  ",Nu
1100 PRINT TAB(47);"
1105 U$=U$&Z$
1110 PRINT U$;TAB(5);Q$(N,1);TAB(47);"
1120 PRINT TAB(5);Q$(Nu,1);TAB(47);"
1130 PRINT "
  |
  |
1140 PRINT "
  |
  |
1150 PRINT "
  "
1160 GOTO 1000
1290 DISP "
1292 INPUT " (1)-NUMBERED LINE (2)-UNNUMBERED QUESTION (3)-TEXT? SELEC
T,THEN CONT ",0
1295 IF O>1 THEN GOTO 1317
1300 INPUT "      INPUT LINE NUMBER AND OPEN-ENDED QUEST. VARIABLE NO. THEN PRESS C
ONT
  ",U$,N
1305 U$=U$&Z$
1310 PRINT U$;TAB(5);Q$(N,1)
1315 GOTO 1290
1317 DISP "
1318 IF O=3 THEN GOTO 1340
1325 INPUT "      INPUT LINE VARIABLE OF OPEN-ENDED QUESTION.. THEN PRESS CONT
  ",Nu
1330 PRINT TAB(5);Q$(Nu,1)
1335 GOTO 1290

```

```

1340 DISP "
1342 INPUT "           INPUT TEXT VARIABLE NUMBER...THEN PRESS CONT "
",N
1343 PRINT Q$(N,1)
1344 DISP "
1347 INPUT "           ANOTHER LINE?..(Y/N) - SELECT ONE, THEN PRESS CO
NT
",A$
1348 IF A$="Y" THEN 1340
1350 GOTO 1290
1450 GOTO 730
1460 PRINT
1470 PRINT
1480 PRINT
1510 PRINT "
E |   |
1520 PRINT "
X |   |
1530 PRINT "
T |   |
1540 PRINT "
R |   |
1550 PRINT "First, check how the TEST ITEM was designed |E |   |
E |   |
1560 PRINT "for each question. Then, if you checked 'Poor,' |M G|V G| G | P |V P|
M P |   |
1570 PRINT "'Very Poor,' or 'Extremely Poor,' explain the |E O|E O| O | O |E O|
E O |   |
1580 PRINT "problem with the item design in the space |L O|R O| O | O |R O|
L O| N |   |
1590 PRINT "under the question. |Y D|Y D| D | R |Y P|
Y R| A |   |
1600 PRINT "

```

---

```

1610 GOTO 730
1620 PRINT "
B |
1630 PRINT "
"
1640 PRINT "
"
1650 PRINT "
"
1660 PRINT "
"
1670 PRINT "
"
1680 PRINT "First, compare the ease of performing tasks | A|I A|A |I A| A|
"
1690 PRINT "while wearing the ITEM A with the ease of per-|M S|T S|B S|T S|M S|
"
1700 PRINT "forming tasks while wearing ITEM B. If you |U I|T I|O A|T I|U I|
"
1710 PRINT "check NA (not applicable,) explain why in the |C E|L E|U M|L E|C E|
N |

```

| <u>ITEM A</u>       | <u>ITEM</u> |
|---------------------|-------------|
|                     | B           |
|                     | O           |
|                     | A   T T R   |
|                     | H H         |
| E L E               | E L E  E    |
| A I A A             | I A  A      |
| M S T S B S T S M S |             |
| U I T I O A T I U I |             |
| C E L E U M L E C E |             |

```

1720 PRINT "space under the question.          |H R|E R|T E|E R|H R|
A |
1730 PRINT "_____
"
1740 GOTO 730
1750 PRINT
1770 PRINT
1780 PRINT T$(1)[1,8];TAB(10);"(cont)"
1795 PRINT
1800 GOTO 730
1800 PRINT
1820 PRINT
1830 PRINT T$(1)[1,8];TAB(10);"(concluded)"
1835 PRINT
1840 GOTO 730
1860 PRINT
1863 DISP "
1865 INPUT "           INPUT LAST TEXT NUMBER..THEN PRESS CONT      ",Nu
1870 PRINT "           LIST OF TITLES, CATEGORIES AND QUESTIONS   "
1880 PRINT "           DATA STORED IN FILE ";F$
1890 PRINT
1900 PRINT "CATEGORY     VAR.    TEXT   "
1910 PRINT
1930 PRINT "FORM TITLE";TAB(14);T$(1);TAB(20);T$(1)
1940 PRINT "FORM TITLE";TAB(14);T$(2);TAB(20);T$(2)
1941 PRINT
1942 FOR I=0 TO Nu
1950 PRINT "TEXT";TAB(14);Q$;I;TAB(20);Q$(I,1)
1960 NEXT I
1961 PRINT LIN(4)
1970 GOTO 730
1975 DISP "
1977 INPUT "           INPUT PART (?) `COMPLETED', PART (?) `BEGINS
" ,P$(1),P$(2)
1978 INPUT "           QUESTIONNAIRE BEGINS [THIS] OR [NEXT] PAGE???
",NS
1980 PRINT
1990 PRINT "           PLEASE NOTE:-           "
2000 PRINT
2010 PRINT "           YOU HAVE JUST COMPLETED PART ";P$(1);" OF THIS QUESTIONNAI
RE."
2020 PRINT "           PART ";P$(2);" BEGINS ON ";NS;" PAGE AND USES A DIFFERENT
RATING"
2030 PRINT "           SCALE."
2040 PRINT
2050 GOTO 730
2090 PRINT
2100 PRINTER IS 16
2110 PRINT PAGE
2120 PRINT LIN(3);" SPECIAL FUNCTION KEYS ARE USED TO CONTROL THE QUERSTIONNAI
RE CONSTRUCTION PROGRAM:-"
2130 PRINT
2140 PRINT " K0      2-LINE LEADER      Prints two blank lines."
2145 PRINT

```

|                                  |   |
|----------------------------------|---|
| 2150 PRINT " k1 PAGE 1           | Prints questionnaire title and person required from TPs.                              |
| a1 data "                        | "   |
| 2155 PRINT "                     | Prompts operator to input category title  |
| 2160 PRINT " k2 CATEGORY TITLE   | variable number.  |
| title "                          | "   |
| 2165 PRINT "                     | Prompts operator to input question number and variable number of question             |
| 2170 PRINT " k3 1-LINE QUEST.    | number and variable number of question  |
| ne "                             | be printed.   |
| 2175 PRINT " to "                | "   |
| 2178 PRINT "                     | Prompts operator to input question number and variable numbers of lines one and two." |
| 2180 PRINT " k4 2-LINE QUEST.    | Prints header 'FORM F-N (Cont.)' at top of page.                                      |
| ne and "                         | "   |
| 2185 PRINT "                     | Prints header 'FORM F-N (Concluded)' at top of last page.                             |
| 2190 PRINT " k5 FORM (Cont.)     | "   |
| p of "                           | "   |
| 2195 PRINT "                     | "   |
| 2205 PRINT " k6 FORM (Concluded) | "   |
| at "                             | "   |
| 2215 PRINT "                     | PRESS CONT FOR MORE ....";  |
| 2216 PRINT                       | "   |
| 2225 PRINT                       | "   |
| 2235 DISP TAB(15);"              | Prints remark advising TP he/she has  |
| 2245 PAUSE                       | completed a portion of questionnaire. I   |
| 2255 PRINT " k7 PART CONCLUSION  | PART (NO.) completed and PART (NO.) to  |
| just "                           | begin as required."   |
| 2265 PRINT "                     | Selects questionnaire 6-point rating  |
| nput "                           | 'Very Easy' to 'Can't Do'."   |
| 2275 PRINT "                     | Selects and print 6-point rating scale  |
| "                                | 'Extremely Good' to 'Extremely Poor'.   |
| 2278 PRINT "                     | Selects and prints comparative rating   |
| 2285 PRINT " k8 VERY EASY        | (Comparison between TEST ITEM A and TEST  |
| scale: "                         | B)  |
| 2295 PRINT "                     | Used for formatting open-ended questi   |
| 2305 PRINT " k9 EXTREMELY GOOD   | ons with varying string lengths (76-Max)."  |
| e: "                             | (1) Question with numbered line TAB(1)  |
| 2315 PRINT "                     | (2) Question w/o numbered line;TAB(4)"  |
| "                                | (3) Text or underlines;TAB(1)"  |
| 2325 PRINT " k10 COMPARATIVE     | PRESS CONT FOR MORE ....";  |
| scale: "                         | "   |
| 2335 PRINT " T ITEM B)"          | "   |
| 2345 PRINT " k11 OPEN-ENDED      | Puts computer into Edit Mode; can the   |
| ons "                            | n make "  |
| 2355 PRINT "                     | "   |
| 2365 PRINT "                     | "   |
| "                                | "   |
| 2375 PRINT "                     | "   |
| 2385 PRINT "                     | "   |
| 2386 PRINT                       | "   |
| 2390 DISP TAB(15);"              | "   |
| 2400 PAUSE                       | "   |
| 2405 DISP TAB(15);"              | "   |
| 2410 PRINT " k12 EDIT            | "   |

```
2420 PRINT "
2430 PRINT "    k13  PRINT TEXT
nput
"
2440 PRINT "
ed."
2450 PRINT "    k14  ADD TEXT
en-ended"
2460 PRINT "
2470 PRINT "    k15  HELP !!!
ed"
2480 PRINT "
2490 PRINT LIN(4);"
..
2500 PAUSE
2510 PRINT PAGE
2520 GOTO 730
2530 END
```

changes to program list. "
Print text of pre-stored data list. I
last line number of text list as requir
Used for adding more questions and op
texts to existing data list."
To give some assistance to the confus
computer operator."
PRESS DESIRED FUNCTION-KEY TO EXIT .

SAMPLE HUMAN FACTORS QUESTIONNAIRE  
TRANSPORTABLE HELICOPTER ENCLOSURE (THE)

Test exercise: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_ Rank / grade: \_\_\_\_\_

**Unit:** \_\_\_\_\_ **Mos/job:** \_\_\_\_\_

Age: \_\_\_\_\_ Sex: \_\_\_\_\_ Time in Panama: \_\_\_\_\_

Previous experience with test item: \_\_\_\_\_

First, rate how easy or hard it was to perform the task. Then, if you checked 'Hard,' 'Very Hard,' or 'Can't Do,' explain the problem with the item in the space under the question.

## PART I. TASK PERFORMANCE

- |                                       |  |  |  |  |  |
|---------------------------------------|--|--|--|--|--|
| 1. Unloading the THE from truck _____ |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
| 2. Unpacking the THE _____            |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
| 3. Joining components _____           |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
| 4. Aligning components _____          |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
| 5. Lifting components _____           |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |
|                                       |  |  |  |  |  |

|     |       |         |   |     |   |  |  |
|-----|-------|---------|---|-----|---|--|--|
| A   | L     | I       | C |     |   |  |  |
| V E | E T H | H V H A |   |     |   |  |  |
| E A | A T A | A E A N |   |     |   |  |  |
| R S | S L R | R R D   | D | T O | N |  |  |
| Y Y | Y E D | D Y D   |   |     |   |  |  |

First, rate how easy or hard it was to perform the task. Then, if you checked 'Hard,' 'Very Hard,' or 'Can't Do,' explain the problem with the item in the space under the question.

|                                       |  |  |  |  |  |  |  |
|---------------------------------------|--|--|--|--|--|--|--|
| 6. Fastening components _____         |  |  |  |  |  |  |  |
| 7. Installing anchoring devices _____ |  |  |  |  |  |  |  |
| 8. Erecting the THE _____             |  |  |  |  |  |  |  |
| 9. Operating blower _____             |  |  |  |  |  |  |  |
| 10. Unfastening components _____      |  |  |  |  |  |  |  |
| 11. Removing anchoring devices _____  |  |  |  |  |  |  |  |
| 12. Disassembling the THE _____       |  |  |  |  |  |  |  |

First, rate how easy or hard it was to perform the task. Then, if you checked 'Hard,' 'Very Hard,' or 'Can't Do,' explain the problem with the item in the space under the question.

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| V | E | E | T | H | H | V | H | C |
| E | A | A | T | A | A | E | A | N |
| R | S | S | L | R | R | R | R | D |
| Y | Y | Y | E | D | D | Y | D | T |

13. Repacking the THE \_\_\_\_\_

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---

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14. Loading the THE onto truck \_\_\_\_\_

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---

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15. Reading manuals \_\_\_\_\_

---

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---

16. Understanding manuals \_\_\_\_\_

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17. Towing aircraft into the THE \_\_\_\_\_

---

---

---

18. Towing aircraft out of the THE \_\_\_\_\_

---

---

---

19. Using aircraft hoist inside the THE \_\_\_\_\_

---

---

---

First, rate how easy or hard it was to perform the task. Then, if you checked 'Hard,' 'Very Hard,' or 'Can't Do,' explain the problem with the item in the space under the question.

|   |   |   |   |   |
|---|---|---|---|---|
| V | E | L | A | C |
| E | A | I | T | H |
| R | S | T | A | H |
| Y | Y | R | A | V |
|   |   | R | E | H |
|   |   | D | A | A |
|   |   | Y | N | N |
|   |   | D | O | A |
|   |   | T | O |   |
|   |   | O | A |   |

20. Performing aircraft maintenance inside the THE \_\_\_\_\_

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21. Working safely inside the THE \_\_\_\_\_

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22. Working comfortably inside the THE \_\_\_\_\_

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23. Maintaining the THE \_\_\_\_\_

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24. Repairing fabric \_\_\_\_\_

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25. Repairing components \_\_\_\_\_

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---

26. Using repair kit \_\_\_\_\_

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First, rate how easy or hard it was to perform the task. Then, if you checked 'Hard,' 'Very Hard,' or 'Can't Do,' explain the problem with the item in the space under the question.

|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| A | L | I | H | H | V | H | C |
| E | A | T | A | A | E | A | A |
| R | S | L | R | R | R | R | ' |
| Y | Y | E | D | D | Y | D | D |
|   |   |   |   |   | T | O | N |
|   |   |   |   |   |   |   |   |

27. Replacing components \_\_\_\_\_

PLEASE NOTE:-

YOU HAVE JUST COMPLETED PART I OF THIS QUESTIONNAIRE.  
PART II BEGINS ON NEXT PAGE AND USES A DIFFERENT RATING  
SCALE.

First, check how the TEST ITEM was designed for each question. Then, if you checked 'Poor,' 'Very Poor,' or 'Extremely Poor,' explain the problem with the item design in the space under the question.

|   |     |     |   |   |         |   |  |
|---|-----|-----|---|---|---------|---|--|
| E |     |     |   | E |         |   |  |
| T |     |     |   | T |         |   |  |
| R |     |     |   | R |         |   |  |
| E | M G | V G | G | P | V P M P |   |  |
| E | E O | E O | O | O | E O E O |   |  |
| L | L O | R O | O | O | R O L O | N |  |
| Y | Y D | Y D | D | R | Y R Y R |   |  |
| D |     |     |   |   |         | A |  |

**PART II. COMPATIBILITY**

28. Compatibility of the THE components with transport vehicles \_\_\_\_\_

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29. Compatibility of the THE components with materials handling equipment \_\_\_\_\_

---

---

30. Compatibility of the THE components with the THE packing and transport cases \_\_\_\_\_

---

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**PLEASE NOTE:-**

YOU HAVE JUST COMPLETED PART II OF THIS QUESTIONNAIRE.  
PART III BEGINS ON NEXT PAGE AND USES A DIFFERENT RATING SCALE.

### PART III. ADEQUACY

First, rate the adequacy of the following items. If you check 'Not Adequate' please explain the problem with the item in the space under the question.

---

- |   |                 |                     |
|---|-----------------|---------------------|
| 31. Common/special tools used during the test   | ADEQUATE<br>[ ] | NOT ADEQUATE<br>[ ] |
|   |                 |                     |
|   |                 |                     |
|   |                 |                     |
| 32. Materials handling equipment used during the test   | ADEQUATE<br>[ ] | NOT ADEQUATE<br>[ ] |
|   |                 |                     |
|   |                 |                     |
|   |                 |                     |
| 33. Lighting system used inside the THE   | ADEQUATE<br>[ ] | NOT ADEQUATE<br>[ ] |
|   |                 |                     |
|   |                 |                     |
|   |                 |                     |
| 34. Ventilation equipment used inside the THE   | ADEQUATE<br>[ ] | NOT ADEQUATE<br>[ ] |
|   |                 |                     |
|   |                 |                     |
|   |                 |                     |
| 35. Please explain any problems, particularly safety-related problems, not mentioned previously | _____           |                     |
|   |                 |                     |
|   |                 |                     |
|   |                 |                     |

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